

SECRET

IN 24137

ACTION COPY

1967 NOV 3 21 18Z

S E C R E T 031949Z CITE ADIC 3219
PRIORITY BABY INFO SPECTRE

1. AN URGENT REQUIREMENT EXISTS FOR BABY TO FURNISH ASAP THE FOLLOWING INFORMATION TO A SPECIAL STUDY GROUP CONVENED AT SPECTRE.

QUOTE 2. "FINDINGS OF INVESTIGATIONS, IN VIEW OF CURRENT DEADLINE FOR RESULTS BY 1 DEC, INDICATE THAT AN URGENT REQUIREMENT EXISTS FOR SYSTEM RESOLUTION IN IMAGE SPACE, AS DEGRADED BY TWO SIGMA VALUES OF UNCOMPENSATED IMAGE MOTION, RANDOM AND CYCLIC VEHICLE MOTION, DEFOCUS AND LENS-EMULSION LIMITATIONS. THIS SYSTEM RESOLUTION IS REQUIRED IN TERMS OF POSITION (X, Y) ON THE FORMAT FOR ANY POINTING ANGLE FOR FRAME CAMERAS, AND AT ANY SCAN POSITION FOR PANORAMIC CAMERAS. FOR PURPOSES OF THIS REQUIREMENT, THE OPERATIONAL SYSTEM RESOLUTION AT ANY POINT ON FORMAT WILL BE DEFINED AS K (THE SPATIAL FREQUENCY IN LINES/MM). IMPLICIT IN EACH VALUE OF K MUST BE THE DEGRADATION IN RESOLUTION IN IMAGE SPACE DUE TO:

- A. UNCOMPENSATED IMAGE MOTION (UIM)
- B. RANDOM AND CYCLIC VEHICLE MOTION (VM)
- C. DEFOCUS (D)
- D. LENS-EMULSION LIMITATIONS (LE)

THE ABOVE FACTORS YIELD THE SYSTEM RESOLUTION AT A POINT ON THE FORMAT, I.E., THE RESOLUTION RESULTING FROM THE SELECTED FIELD ANGLE OF THE LENS, AS DEGRADED BY OPERATIONAL FACTORS A THROUGH D.

IN TERMS OF MATHEMATICAL NOTATION, K, THE OPERATIONAL SYSTEM RESOLUTION AT ANY IMAGE POINT CAN BE EXPRESSED AS:

1. K EQUALS F (UIM, VM, D, LE)

WHERE

2. K OF UIM EQUALS F (X, Y, P, R)

WHERE X, Y ARE IMAGE POINT COORDINATES

P, R ARE PITCH AND ROLL WHICH INFLUENCE IMAGE SMEAR,

3. K OF VM EQUALS F (X, Y),

4. K OF D EQUALS F (X, Y),

5. AND K OF LE EQUALS F (X, Y).

IF AVAILABLE, PREFER THAT K IN EQUATION 1 BE STATED IN TERMS OF X AND Y COMPONENTS.

IF THE REQUESTED DATA IS AVAILABLE IN MORE THAN ONE FORM, OUR ORDER OF PREFERENCE IS AS FOLLOWS:

- AA. EQUATIONS 1 THROUGH 5.

BB. VALUES OF K DEVELOPED VIA THE CASCADED MODULATION TRANSFER FUNCTION (MTF) TECHNIQUE. THIS WOULD REQUIRE AN MTF (PLOT OF SYSTEM MTF VS. K) FOR EVERY IMAGE POINT EVALUATED.

CC. ALL DATA, I.E., GRAPHS, CURVES OR TABULATIONS WHICH REFLECT THE RESOLUTION DEGRADATION, DUE TO A THROUGH D ABOVE, FOR A DISTRIBUTION OF IMAGE POINTS.

DD. ANY COMBINATIONS OF AA THROUGH CC WHICH SATISFIES A THROUGH D. (END OF QUOTE)

3. TWO IMMEDIATE ANSWERS ARE REQUIRED FROM BABY:

- A. IS ABOVE INFO AND DATA AVAILABLE?

B. IF AVAILABLE, WHAT IS EARLIEST DATE MATERIAL CAN BE FURNISHED TO SPECTRE?

C. IF THERE ARE ANY QUESTIONS OR NEED FOR CLARIFICATION DIRECT THEM TO [REDACTED], SPECTRE.

S E C R E T

END OF MESSAGE

DISTRIBUTION		
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1	File	
2	OS	
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4	TDS	
5	CSD	
6	IPD	
7	PD	
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13	DIAXX-4	
14	SPAD	
15	NSA-LO	
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OUT 63505

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1967 NOV 3 123507

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PASS TO

DISTRIBUTION			Initial
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- A. UNCOMPENSATED IMAGE MOTION (UIM)
- B. RANDOM & CYCLIC VEHICLE MOTION (VM)
- C. DEFOCUS (D)
- D. LENS-EMULSION LIMITATIONS (LE)

D. LENS-EMULSION LIMITATIONS (L.E.)

THE ABOVE FACTORS YIELD THE SYSTEM RESOLUTION AT A POINT ON THE FORMAT, I.E., THE RESOLUTION RESULTING FROM THE SELECTED FIELD ANGLE OF THE LENS, AS DEGRADED BY OPERATIONAL FACTORS A THROUGH D.

D. IN TERMS OF MATHEMATICAL NOTATION, K, THE OPERATIONAL SYSTEM RESOLUTION AT ANY IMAGE POINT CAN BE EXPRESSED AS:

1. K EQUALS F (UIM, VM, D, LE)

WHERE

2. X OF UIM EQUALS F (X, Y, P, R)

WHERE X, Y ARE IMAGE POINT COORDINATES

P, R ARE PITCH AND ROLL WHICH INFLUENCE IMAGE SMEAR.

3. K OF VM EQUALS $F(X, Y)$.

4. K OF D EQUALS $F(X, Y)$,

5. AND K OF LE EQUALS $F(X, Y)$.

IF AVAILABLE, PREFER THAT K IN EQUATION 1 BE STATED IN TERMS OF X AND Y COMPONENTS.

IF THE REQUESTED DATA IS AVAILABLE IN MORE THAN ONE FORM,

OUR ORDER OF PREFERENCE IS AS FOLLOWS:

- AA. EQUATIONS 1 THROUGH 5

BB. VALUES OF K DEVELOPED VIA THE CASCADED MODULATION TRANSFER FUNCTION (MTF) TECHNIQUE. THIS WOULD REQUIRE AN MTF (PLOT OF SYSTEM MTF VS. K) FOR EVERY IMAGE POINT EVALUATED.

CO. ALL DATA, I.E., GRAPHS, CURVES OR TABULATIONS WHICH REFLECT THE RESOLUTION DEGRADATION, DUE TO A THROUGH D ABOVE,

REFLECT THE RESOLUTION DEGRADATION
FOR A DISTRIBUTION OF IMAGE POINTS.

DD. ANY COMBINATIONS OF AA THROUGH CC WHICH SATISFIES A THROUGH D.

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END OF MESSAGE

SECRET NOFORN

GROUP 1
Excluded from automatic
downgrading and
declassification

SECRET

1967 OCT 23 21 13Z

OUT63408

ACTION COPY

SECRET 232055Z CITE SPECTRE 2065

PRIORITY-MANOR INFO ADIC, WHIG

OXCAR

SUBJECT: NICE GIRL

1. REVIEW OF 13 OCT 1967 MEMO FROM DR. HORNIG TO MESSRS. NITZE AND HELMS (BYE 57350/67) (RECD SPECTRE 10/18/67) INDICATES NEED FOR EMPHASIZED ATTENTION TO SUGGESTION TO CONSIDER USE OF VALUE FUNCTION ANALYSIS AS ADDITIONAL POSSIBLE ASSIST IN EVALUATING AND COMPARING SR-71 AND A-12 SENSOR SYSTEMS.
2. SIMILAR COMPARISON OF UNLIKE CAMERAS MADE IN SELECTION OF HEXAGON CAMERA SYSTEM. SPECTRE SUGGESTS NICE GIRL SUB-GROUP INVESTIGATE POSSIBILITY OF APPLYING SIMILAR ANALYTICAL APPROACH TO SR-71 TECH AND OPERATIONAL OBJECTIVE AND A-12 TYPE I CAMERAS.

3. ADIC, USAF, SPECTRE, MANOR, WHIG GROUP COMPOSITION SUGGESTED WITH CONSULTANTS AS REQUIRED.

SECRET

END OF MESSAGE

**HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY**

SECRET

3
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declassification

PRIORITY**SECRET**

IN 23520

067 OCT 26 21 58Z

3

SECRET 262020Z CITE WHALE 8950
PRIORITY SPECTRE INFO WHIG MAHOR ADIC
OXCART

SUBJECT: NICE GIRL

REFERENCE SPECTRE 2065 (OUT 63408)

1. THIS REPLY FROM KWWHALE IS AT THE REQUEST OF KWWHIG.
 2. CONCUR IN YOUR RECOMMENDATIONS.
 3. AS A RESULT OF DISCUSSION WITH KWWHIG, IT IS REQUESTED THAT A VALUE FUNCTION ANALYSIS BE ACCOMPLISHED BY A SMALL GROUP ON A PRIORITY BASIS SEPARATELY FROM THE DATA ANALYSIS REQUESTED BY THE JCS. KWWHALE, WILL WORK WITH YOU ON THIS ANALYSIS TO ENSURE PROPER GROUND RULES ARE USED.
- SECRET**

END OF MESSAGE

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